

**QA Strategy Workgroup Notes From
The QA National Meeting
April 14, 2005 San Diego, CA**

Attendees

Melinda	Ronca Batista	Northern Arizona U.	Anna	Kelley	Ohio
Louise	Camalier	OAQPS	Jeff	Lantz	ORIA
Basil	Coutant	Battelle	Mike	Miguel	California
Ben	Davis	Arizona	Dennis	Mikel	OAQPS
Randy	Dillard	Alabama	Lawson	Oti	Florida
Ken	Distler	Region 8	Mike	Papp	OAQPS
Joe	Elkins	OAQPS	Charles	Pearson	California
Danny	France	Region 4	Donovan	Rafferty	Washington
Robert	Franicevich	California	Scott	Reynolds	South Carolina
Stephen	Hall	Missouri	Mark	Shanis	OAQPS
Chris	Hall	Region 10	Candace	Sorrell	OAQPS
Jeremy	Hardin	Alabama	Shannon	Stetzer Biddle	Battelle
Richard	Heffern	Alaska	Pat	Svetaka	Region 1
Andrew	Johnson	Maine	Avi	Teitz	Region 2
Gordon	Jones	Region 5	Joseph	Ugorowski	Montana
			Jeff	Wasson	Iowa

Topics

The QA Strategy Workgroup prioritized a list of topics a few weeks prior to the meeting. Facilitators for the topics were also identified. The Workgroup addressed as many topics as reasonable with the objective of providing full discussion of a topic rather than trying to get through all topics. Due to recent progress of the Protocol Gas Verification Program, this topic, not on the original list, was quickly addressed before getting into the remaining topics.

Topic # 0 Protocol Gas Verification Program- Mike Papp- Facilitator

Over the past 2 years OAQPS and OAP have been trying to resurrect the Protocol Gas Verification Program in a manner that the gas vendors would pay for the program and NIST would provide the certification analysis. One of the hurdles from a NIST perspective was how to acquire cylinders “blindly” from the vendors. Mike Papp asked whether the monitoring organizations would be willing to help in this process. In general, OAQPS would develop a process to poll the monitoring organizations to determine those purchasing protocol gasses from vendors who are participants in the Protocol Gas Verification Program. Upon monitoring organization purchase, a selected set of representative cylinders would be shipped from the monitoring organization to NIST for certification and back to monitoring organization once analysis was complete. The monitoring organizations whose cylinders were used would directly benefit from their cylinders being certified by NIST. The monitoring organizations as a whole

would benefit from the re-establishment of the verification program. Although the process has not been developed there could be a shipping cost (monitoring org. to NIST) incurred to the monitoring organization . Mike asked whether the monitoring organizations would be willing to participate in this program. The monitoring organizations at the meeting affirmed they would be willing to participate. Details of this program will be developed over the next year.

Topic # 1 Review of our initial priority list see how we are doing, have priorities changed. - Mike Papp- Facilitator

During the development of the QA portion of the Monitoring Strategy the QA Strategy Workgroup developed a list of QA activities that needed to be addressed. This list was prioritized. The Workgroup felt that the list should be reviewed to see what progress was made, whether the priorities were still appropriate and whether new activities needed to be included. The list was highlighted in yellow for activities that were either completed or where some work had been accomplished. The following table provide the comments that were made on some topics that have not been addressed.

Topic Priority #	Comments
1.50	<p>PAMS NPAP should be conducted in the January to March time frame so that potential problems can be rectified prior to the ozone season.</p> <ul style="list-style-type: none"> - Not sure if January –March is a good time frame because they would be testing old cylinders. Need to wait until new cylinders (April –June) are acquired. - January – March date picked because you needed to get cylinders analyzed in time to take corrective action. - 1.64 topic needs to be combined with topic 1.47.
1.53	<p>Ensure funding for QA training incorporated through grants</p> <ul style="list-style-type: none"> - Might help to insert or strengthen language in grant so States can get to travel to these training opportunities. - Add training to this conference- might be good way to accomplish multiple training at one location and trip. - The multi-State organizations (e.g., WestStar) maybe an area we need to tap
1.56	<p>Training for managers so they understand components/needs for QA</p> <ul style="list-style-type: none"> - Think it would be good at STAPPA/ALAPCO or Multi-State agency meetings. Short course but to let them know what is going on. - Some of the Regional organizations might be another good place to do these short course - Cannot be one time shot. Must continue to put it in front of them. - Need to include what EPA is expecting the Regional offices to help/do. - May need managers to go through QA training so they get a better grasp of what is needed for good QA. At least an overview every few years. Maybe put it in dollars and cents terms too. Need to make it look valuable to them rather than they are forced to do it. - Maybe we can put together a good slide show presentation that people can present to their managers may be good way to reach more managers. Need to have something done on-line that is slick and short and give overall view.

	<ul style="list-style-type: none"> - Chapter 3 in QA Handbook. List of available training and who should be taking this training.
1.59	<p>Ensure AQS Summarizes Data as DQOs indicate</p> <ul style="list-style-type: none"> - Making progress but concerned if AQS will be able to do this too. May get tables up but will not get graphics. - One person commented that they were concerned that some of the information was missing. Mike asked that people let EPA know if they notice gaps where information should have been reported.
1.59	<p>Combining all guidance in one document (QA Handbook)</p> <ul style="list-style-type: none"> - Will probably delay QA Handbook until a decision is made about promulgating a PMcoarse standard. - Will include as much information as possible in Handbook but will use links for other documentation
1.59	<p>Review each methods and QA for "musts" and "shalls". Identify "musts" in regulation without describing frequency or acceptability.</p> <ul style="list-style-type: none"> - Need to make sure there is a consequence when requirements not met. QA handbook gives directions but QAPPs outline consequences.
1.61	<p>Improve cooperation with State/local/tribes in getting precision data into AQS</p> <ul style="list-style-type: none"> - Time and capacity to get the data from tribes is still a problem - Some do not know what they are supposed to do. - Melinda's next big project is to try to help them get data into AQS - Region 5 holding tribes more accountable. - Melinda looking for tools or information which would help in this area. - PARS 2 is very good tool for getting data into AQS
1.65	<p>Developing audit teams to help each other out</p> <ul style="list-style-type: none"> - Good idea and several states are doing this. - Locals are inviting states to attend audits. - Get copies of TSAs and maybe combine to form one good one or at least put on AMTIC for people to look at and use

Issues we should look at:

- NCore level 2 – Look at questions that we need to ask
- Concern about unvalidated AIRNOW data to researchers in a quick time frame. Website does have flag but not sure how many people look at this
- Issue of what quality of QA is needed based on how the data is used.
- Statistics Training for QA Folks

Topic #2 Meteorology data and QA - Dennis Mikel - Facilitator

The facilitator presented a brief history of the QA documentation that EPA has generated. Then the following topics were presented for discussion:

Talking Points:

- 1. Is the current guidance documentation (2000), adequate for current and future needs (i.e., NCore Level II stations)?**

2. **The 2000 guidance document barely speaks about sonic anemometers and their issues. Does there need to be a new Volume IV or add-on document?**
3. **The 2000 guidance document recommends that the primary DAS be micro-processor based. Is this the norm?**
4. **At what stage should a monitoring agency decide to move away from using the National Weather Service and implement meteorological measurement systems?**
5. **The 2000 guidance document recommends audits be performed within 30 days after start-up and on 6-month intervals? Is this being followed?**

Item #1. Current guidance is it adequate? There was general agreement that the current guidance document (Met Modeling Guidance, 2000) needs more detail for the monitoring community because the document is written for monitoring people that support modeling applications only. The 2000 document is set up for PSD support as well. It was agreed that this is a good start, but it needs more detail.

Issues to be resolved:

- Scalar, vector and sigma data, what is needed?
- Tower height
- What is considered collocated?
- Consistency with met guidance and PAMS requirements (i.e. PAMS requires upper air data)
- Do we need to combine the Met Modeling document with Volume 4 (Yes)
- Do we need DQOs for met data?
- How do we create a generic document vs. specificity for various programs?
- Lockhart language is still ambiguous needs more detail (major author of Volume 4).

Item #2: Sonic Anemometers: There was general discussion about these new systems. They are widely gaining acceptance in the monitoring community. However, there are issues with these instruments:

- How do you calibrate this? There is no direct method for calibration. However, CARB has an SOP on calibration and auditing these sensors. Mike will be tapped to provide this to EPA.

There was general agreement that sonic anemometers need QC/QA documentation and that it should be in any new documentation.

Item #3: Data Acquisition: The modern data acquisition systems (DAS) can collect scalar (average), vector and compute the standard deviation (sigma). This is necessary if the data will be used for modeling purposes. Here are the issues:

- Strip chart recorders: are these necessary? Most of the group felt strip chart recorders can be phased out. However, they can be a very useful troubleshooting tool because of their fast reactions.

- Sometime strip charts are used more as a diagnostic tool but don't want it required because then you need to maintain them
- Some type of charting needs to be done.
- Should the vector and sigma data be audited? How is this done?

Other topics that were discussed:

- Why is solar radiation not part of NCore?
- Solar radiation – what is it that we are measuring?
- Every 6 months a check or audit should be accomplished but at least an audit once a year.
- Some additional checks on a more frequent basis, we need guidance on this from EPA.
- English or standard units: Which is preferred?

The final topic was whether to form a meteorological QA workgroup.

Topic #3 Regional Consistency in the expectations in detail and specificity in QAPPs- Mike Papp - Facilitator

OAQPS has recently received inspector general reports that some EPA Regions did not have required QA project plans (QAPPs). OAQPS has asked the Regions for a status report on both quality management plans (QMPs) and QAPPs and there are monitoring organization that either have not submitted QMPs/QAPPs or have approved QAPPs that have not been updated for many years. In addition, over the years there have been complaints over the inconsistency in the QAPP approval among EPA Regions. Comments from the Workgroup included:

- Put into effect the “graded approach”- During the National Meeting there was a joint EPA Headquarters/EPA Regional QA Managers Meeting. Mike Papp brought up the issue of the QAPPs as well as asked the Regional QA Mangers to accept/endorse the graded approach that was developed by the QA Strategy Workgroup. Mike will follow up with the EPA QA Managers on the graded approach issue this year.
- SOPs included with QAPPs- QAPPs should either include SOPs or the SOPs should be referenced in the QAPP and be available during the approval process or during technical systems audits.
- Have a separate QAPP for each pollutant (i.e. a gaseous QAPP) vs. a general QAPP- Both types are appropriate. Since many of the QA/QC requirements for the gaseous pollutants are the same, it may be easier to write one QAPP and utilize some key tables to display critical data quality information. The QAPP software being developed by the tribes will be capable of producing a combined QAPP but it goes through the questions one pollutant at a time. There was a comment that there was a Corps of Engineers/EPA training course that produced a nice checklist with a generic set of questions that reviewers are going to look at (Gordon). A suggestion was to put a similar checklist up on AMTIC

- There was a suggestion that OAQPS develop a generic QAPP (like the PM2.5 Model QAPP) for the gaseous pollutants that monitoring organizations can use as an example- Melinda Ronca-Battista has developed individual examples for each pollutant that could provide this type of guidance.

Topic # 4 Improvements to the QA Handbook – Anna Kelley- Facilitator

Opened up session by asking what changes and/or additions the work group felt are yet needed to the QA Handbook to make the document more inclusive of ambient air monitoring information. Suggested additions follow.

- Meteorological parameters will be required to be monitored at NCore Level 2 monitoring sites. Dennis Mikel has taken the lead on this topic. Please see Topic #2 for additional information.
- Technical Systems Audits (TSA) Information: It was felt by members of the work group that the TSA information and forms need revision. Gordon Jones, Region 5, had volunteered to head up the revisions. Work group members are encouraged to call or send comments to him.
- Several comments were made concerning revisions to the calibration section, Section 12.0. Need to include what are the acceptable limits for performing multipoint calibrations.
- Section revisions completed: 0.0, 1.0, 2.0, 5.0, and 14.0. A. Kelley will ensure revisions are completed and posted to AMTIC within a two week period.
- Work is currently in progress on revisions to Section 7.0. D. Mikel is completing work on information for sampling manifold systems. This section also includes criteria for acceptable response on TTP and at the back of the instrument, acceptable sampling probe material, residence time guidance as relates to length of probes.
- Work group felt other areas of information to be included in this and/or Section 12.0 are temperature and pressure corrections, and basic gas laws and corrections.
- Training guidance - (APTI Course 435) also should be listed and/or revised in the QA Handbook.
- Section 6 will look at NCore and siting requirements and guidance for the same.
- Waiver guidance needs to be included as information is needed on how, when, where and why to use.
- P & A Calculations need to be included in the handbook.

Topic # 5 Electronic record keeping- what's acceptable – Anna Kelley-Facilitator

Catherine Brown, Region 9, provided a presentation on the status of EPA's efforts concerning electronic record keeping. CROMERR or Cross Records Electronic Reporting and Recordkeeping Rule was to provide the legal requirements for submitting electronic records. It does to a certain extent but does not regulate ambient air monitoring data although all data goes through the central data exchange or CDX. EPA is still developing what we want but is now titled Enterprise Content Management System (ECMS). EPA's policy will most likely be derived from this. Some questions were posed that A Kelley could not answer but will speak with C. Brown and send information to work group. Need to determine is the door closed for comments. It was suggested the work group tackle one of the many record keeping tasks ambient air monitoring organizations perform to determine what would be the most time saving benefit to everyone. Next this task would be run by the Office of Environmental Information to determine if this task is performed using electronic record keeping does it violate EPA policy and/or is it in line with reporting requirements for electronic records.

Topic #6 DQO/MQOs for the precursor gases – Dennis Mikel – Facilitator

The Monitoring Strategy is proposing the monitoring of precursor gas at low concentration levels. For the last year the Ambient Air Monitoring Group (AAMG) has been testing out the newest generation of trace gas instrumentation in order to provide guidance on the operation of these instruments and to test the vendor's specification of some of the data quality indicators (detection limit, precision, bias etc.) This information will help in the development of data quality objectives (DQOs) and measurement quality objectives (MQOs).

OAQPS has formed a team to determine the data quality objectives for precursor gas monitoring. The Team will proceed through the seven step process with DQOs hopefully developed by September for one if not all three precursor gas pollutants. Once we have these DQOs we can use this information to develop our acceptance requirements for our measurement quality objectives. However, we are in a conundrum because as one attempts to develop DQOs it is always good to have some information on the sampling population uncertainty (spatial/temporal variability, population distributions etc.) and measurement uncertainty (detectability, precision, bias and completeness). Therefore, we are in need on precursor gas information in order to build a data set that we can use as a basis to develop adequate power curves in our DQO model. Issues that came up related to the DQO/MQO discussion included:

- The need to get the word out to try and get as much precursor gas data from monitoring organizations as possible. We'd like as much data from the trace gas instruments but we may be able to use surrogate low concentration information also. Some at the meeting responded that they had knowledge of organizations doing this monitoring. OAQPS will follow up with those individuals.

- OAQPS passed out the initial MQO information derived from the AAMG precursor gas work performed in a laboratory setting. They have moved the equipment out to a shelter and will be running these tests again. Louise Camalier had a presentation on the how the precision and bias estimates were calculated. We are using the new calculations that are being proposed in CFR.
- There was a discussion on the issue of the monitoring organizations developing method detection limits for the precursor gas monitors at some frequency yet to be determined. For most of our ambient air monitoring programs, default values have been used based upon information provided by EPA ORD. With the objectives of precursor gas being focused on low concentrations, instrument sensitivity is more important and therefore the detection limit. 40 CFR part 136 Appendix B provides an adequate MDL process for our use but OAQPS has recently heard of challenges to this method so we need to be aware of the outcome. In addition, issues have come up on the appropriateness of the MDL for certain data uses like risk assessment and therefore there has been a proposal to add another type of detection limit to AQS, more related to a limit of quantitation. OAQPS will be forming a workgroup this year to tackle the detection limit issues.

Topic #7: Current recommended calibration and certification ranges need adjustment – Mark Shanis - Facilitator

The group discussed the current calibration ranges of the standard reference photometer with regard to whether the requirement for the current range (1 ppm full scale) is too high. As an example CARB currently calibrates to 800 ppb. Issues discussed under this topic included:

- At low levels having an absolute amount vs. having a %.
- Having 1 calibration point at least where you take action (NAAQS)
- Linearity requires a 2 point standardization where you expect the linearity.

